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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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16

Applicant: Bitler

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Title: Polymeric Thickeners for Oil-Containing Compositions

Version with Markings to show Changes requested by the Reply mailed March 12, 2001
in accordance with 37 CFR 1.121 (c) (1) (ii)

This paper sets out a version of each of the claims rewritten as requested by the Reply filed March, 2001 (but not the claims which were unchanged or which were canceled by the Reply), marked up to show all the changes relative to the previous version of the claim. In this version,

- (i) a parenthetical expression (which is the same as the parenthetical expression in the clean version of claims set out in the Reply) follows the claim number and indicates the status of the claim as amended, and
- (ii) the changes are shown by brackets (for deleted matter) and underlining (for added matter).

2. (Amended) A composition according to Claim [1] 10 which is substantially free of water.

3. (Amended) A thickened oil composition [according to Claim 1] which is a water-in-oil emulsion and which comprises

(1) an oil, and

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(2) dispersed in the oil, a polymer which

(a) has a crystalline melting point, T_p , and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than $T_p^{0.7}$;

(b) is soluble in the oil at temperatures above T_p ,

(c) has been dispersed in the oil by a process which comprises

(i) dissolving the polymer in the oil at a temperature above T_p ,

and

(ii) cooling the solution to crystallize the polymer in the oil,

and

(d) is a side chain crystalline (SCC) polymer which is substantially free of functional groups;

the composition being at a temperature below T_p .

5. (Amended) A composition according to Claim [1] 10, wherein the SCC polymer is present in amount at least 3 % by weight and contains at least 80% by weight of repeating units containing a side chain comprising a linear polymethylene radical containing 10 to 50 carbon atoms.

7. (Amended) A thickened oil composition [according to Claim 1, wherein the SCC polymer] which comprises

(1) an oil, and

(2) dispersed in the oil, a polymer which

(a) has a crystalline melting point, T_p , and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than $T_p^{0.7}$;

(b) is soluble in the oil at temperatures above T_p ,

(c) has been dispersed in the oil by a process which comprises

(i) dissolving the polymer in the oil at a temperature above

T_p , and

(ii) cooling the solution to crystallize the polymer in the oil,

and

(d) is a side chain crystalline (SCC) homopolymer which is substantially free of functional groups;
the composition being at a temperature below T_p .

8. (Amended) A composition according to Claim [1] 7, wherein the SCC polymer consists essentially of units derived from [at least one] an n-alkyl acrylate or methacrylate in which the n-alkyl group contains 12 to 50 carbon atoms.

10. (Amended) A thickened oil composition [according to Claim 1, wherein the polymer] comprising

(1) an oil, and

(2) dispersed in the oil, a polymer which -

(a) has a crystalline melting point, T_p , and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than $T_p^{0.7}$;

(d) is soluble in the oil at temperatures above T_p .

(e) has been dispersed in the oil by a process which comprises

(i) dissolving the polymer in the oil at a temperature above T_p ,

and

(ii) cooling the solution to crystallize the polymer in the oil,

and

(d) is a side chain crystalline (SCC) polymer which is a copolymer, which is substantially free of functional groups, and which consists essentially of units [derived from] selected from

(a) units derived from at least one n-alkyl acrylate or methacrylate in which the n-alkyl group contains 12 to 50 carbon atoms, and

(b) units derived from at least one alkyl acrylate or methacrylate in which the alkyl group is not an n-alkyl group containing 10 to 50 carbon atoms;

12. (Amended) A composition according to Claim [1] 10, wherein T_p is above 40 °C.

13. (Amended) A composition according to Claim [1] 10, wherein T_p is 40-50 °C.

14. (Amended) A composition according to Claim [1] 10, wherein $T_p - T_o$ is less than 10°C.

17. (Amended) A thickened oil composition [according to Claim 15] which is a water-in-oil emulsion and which comprises

(1) an oil, and

(2) dispersed in the oil, at least 3% by weight of a side chain crystalline (SCC) polymer which

(a) has a crystalline melting point, T_p , of 20 to 80 °C, and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than 10 °C;

(b) is soluble in the oil at temperatures above T_p .

(c) has been dispersed in the oil by a process which comprises

(i) dissolving the polymer in the oil at a temperature above T_p , and

(ii) cooling the solution to crystallize the polymer in the oil,

(d) contains at least 80% by weight of repeating units containing a side chain comprising a linear polymethylene radical containing 10 to 50 carbon atoms or a linear substantially perfluorinated polymethylene radical containing 6 to 50 carbon atoms, and

(e) is substantially free of functional groups;

the composition being at a temperature below T_p .

18. (Amended) A composition according to Claim 17 [15], wherein T_p is 40-50 °C.

19. (Amended) A composition according to Claim 17 [15], wherein the SCC polymer consists essentially of units derived from at least one n-alkyl acrylate or methacrylate in which the n-alkyl group contains 12 to 50 carbon atoms.

20. (Amended) A thickened oil composition [according to Claim 15, wherein the SCC polymer is a] which comprises

(1) an oil, and

(2) dispersed in the oil, at least 3% by weight of a side chain crystalline (SCC) homopolymer which

(a) has a crystalline melting point, T_p , of 20 to 80 °C, and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than 10 °C;

(b) is soluble in the oil at temperatures above T_p .

(c) has been dispersed in the oil by a process which comprises

(i) dissolving the polymer in the oil at a temperature above T_p , and

(ii) cooling the solution to crystallize the polymer in the oil,

(d) contains at least 80 % by weight of repeating units containing a side chain comprising a linear polymethylene radical containing 10 to 50 carbon atoms or a linear substantially perfluorinated polymethylene radical containing 6 to 50 carbon atoms, and

(e) is substantially free of functional groups;

the composition being at a temperature below T_p .